BIOCHEMICAL AND BIOPHYSICAL

Research Communications

EDITORS:

Paul D. Boyer
I. C. Gunsalus
B. L. Horecker
Boris Magasanik
Jacques Monod
Frederick C. Neidhardt
Elizabeth F. Neufeld
W. D. Phillips
Esmond E. Snell

Volume 66 • 1975

ACADEMIC PRESS

New York and London

A Subsidiary of Harcourt Brace Jovanovich, Publishers

Copyright © 1975 by Academic Press, Inc.

ALL RIGHTS RESERVED

No part of this publication may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

Made in the United States of America

Contents of Volume 66

Volume 66, Number 1, September 2, 1975

AUTHOR INDEX, Volume 66, Number 1 ii

THOMAS H. JUKES. Mutations in Proteins and Base Changes in Codons 1

MING MAN and ELIJAH ADAMS. Basement Membrane and Interstitial Collagen Content of Whole Animals and Tissues 9

HUGH L. SPITZER, JANICE M. RICE, PAUL C. MacDONALD, and JOHN M. JOHNSTON. Phospholipid Biosynthesis in Lung Lamellar Bodies 17

J. L. BOCK and B. SHEARD. ^{31}P NMR of Alkaline Phosphatase 24

SHARON C. HIXON, WILLIAM E. WHITE, JR., and K. LEMONE YIELDING. Bypass by Photoaffinity Labeling of Blocked Metabolic Activation of Ethidium: Confirmation of the Role for Covalent Ethidium Attachment in Mitochondrial Mutagenesis 31

J. F. ALLEN. A Two-Step Mechanism for the Photosynthetic Reduction of Oxygen by Ferredoxin 36

PER O. SEGLEN. Protein Degradation in Isolated Rat Hepatocytes is Inhibited by Ammonia 44

CHRISTOF GRANZOW, JÜRGEN WEBER, and DIETER WERNER. Synthesis of Lipids, Cholesterol Precursors and Cholesterol in Glycogen-Free and Glycogen-Synthesizing Sublines of the Ehrlich Ascites Tumor 53

AKE NILSSON. Antimicrotubular Agents Inhibit the Degradation of Chyle Cholesterol Ester *in Vivo* 60

STEPHEN M. FERNANDEZ and HESCHEL J. RASKAS. Methylation of Cytoplasmic Adenovirus RNA Synthesized Early and Late in Productive Infection 67

V. TOOME AND G. REYMOND. A Test Tube Reaction for the Determination of the Absolute Configuration of α-Amino Acids 75

JAMES D. FINKELSTEIN, WALTER E. KYLE, JOHN J. MARTIN, and ANN-MARIE PICK. Activation of Cystathionine Synthase by Adenosylmethionine and Adenosylethionine 81

MARTIN D. SHETLAR, HERBERT N. SCHOTT, HAROLD G. MARTINSON, and EMIL T. LIN. Formation of Thymine–Lysine Adducts in Irradiated DNA-Lysine Systems 88

EDITH WILSON MILES. A New Type of Pyridoxal-*P* Enzyme Catalyzed Reaction: The Conversion of β, γ-Unsaturated Amino Acids to Saturated α-Keto Acids by Tryptophan Synthase 94

SCOTT D. POWER, ALI CHOUCAIR, and GRAHAM PALMER. Is Lysine 79 a Ligand for Iron Hexacyanides Bound to Cytochrome C? 103

GENE R. NATHANS and E. P. KIRBY HADE. Proteolytic Activity in Bovine Milk Xanthine Oxidase Preparations 108

EDDY M. MASSA, ROBERTO D. MORERO, BERNABÉ BLOJ, AND RICARDO N. FARIAS. Hormone Action and Membrane Fluidity: Effect of Insulin and Cortisol on the Hill Coefficients of Rat Erythrocyte Membrane-Bound Acetylcholinesterase and $(Na^+ + K^+)$-ATPase 115

N. M. K. NG YING KIN and LEONHARD S. WOLFE. Characterization of Oligosaccharides and Glycopeptides Excreted in the Urine of G_{M1}-Gangliosidosis Patients 123

K. N. PRASAD, P. K. SINHA, S. K. SAHU, and JERRY L. BROWN. Binding of Cyclic Nucleotides with Soluble Proteins Increases in "Differentiated" Neuroblastoma Cells in Culture 131

C. R. GEREN, L. M. GEREN, and K. E. EBNER. Galactosyltransferase: Confirmation of Equilibrium-Ordered Mechanism 139

LELAND S. JAHNKE and ALBERT W. FRENKEL. Evidence for the Photochemical Production of Superoxide Mediated by Saponified Chlorophyll 144

H. PAUL MELOCHE and CLAIRE T. MONTI. Resolution of the Diastereoisomers Generated by the Chemical Reduction of Pyruvate–Lysine Schiff's Base 151

A. S. RAGHAVENDRA and V. S. R. DAS. Malonate-Inhibition of Allosteric Phosphoenolpyruvate Carboxylase from *Setaria Italica* 160

P. DAVID SIMCOX, DAVID T. DENNIS, and CHARLES A. WEST. Kaurene Synthetase from Plastids of Developing Plant Tissues 166

RONALD L. TERJUNG. Cytochrome c Turnover in Skeletal Muscle 173

CRAIG C. MALBON and JAMES E. ZULL. Solubilization of a Parathyroid Hormone Receptor from Bovine Kidney Cortex Plasma Membranes 179

J. I. MORGAN, A. K. HALL, and A. D. PERRIS. Requirements for Divalent Cations by Hormonal Mitogens and Their Interactions with Sex Steroids 188

D. B. ARCHER. The Use of a Fluorescent Sterol to Investigate the Mode of Action of Amphotericin Methyl Ester, a Polyene Antibiotic 195

G. J. DRING and G. W. GOULD. Reimposition of Heat-Resistance on Germinated Spores of *Bacillus cereus* by Osmotic Manipulation 202

EUGENE G. HRYCAY, JAN-AKE GUSTAFSSON, MAGNUS INGELMAN-SUNDBERG, and LARS ERNSTER. Sodium Periodate, Sodium Chlorite, Organic Hydroperoxides, and H_2O_2 as Hydroxylating Agents in Steroid Hydroxylation Reactions Catalyzed by Partially Purified Cytochrome P-450 209

LAI-HIN CHEW, W. ROBERT CARPER, and HALEEM J. ISSAQ. Effects of Metal Substitution on Pig Liver Monoamine Oxidase 217

MICHAEL K. RAYMOND, GREG SCHMITT, and ALAN G. GALSKY. Cyclic-AMP Phosphodiesterase Activity in Crown-Gall Tumor Formation 222

KIYOSHI SHIGA, GORDON TOLLIN, MICHAEL C. FALK, and DONALD B. McCORMICK. Binding and Oxidation-Reduction of Monoamine Oxidase-Type 8α-(S-Peptidyl) Flavins with *Azotobacter* (Shethna) Flavodoxin 227

PHILIPPE HOET, GEORGES FRASELLE, and CARLO COCITO. Transfer to Progeny of Both DNA Strands of Phage 2C 235

W. W. CHRISTIE and R. G. VERNON. The Positional Distribution of Fatty Acids Incorporated into Triacylglycerols by Rat Adipose Tissue Slices *in Vitro* 243

JULIAN LEAKEY and G. J. DUTTON. Precocious Development *in Vivo* of UDP-Glucuronyltransferase and Aniline Hydroxylase by Corticosteroids and ACTH, Using a Simple New 'Continuous Flow' Technique 250

MITSUO YAMAZAKI and MASAAKI SASAKI. Formation of Prostaglandin E_1 from 15-Ketoprostaglandin E_1 by Guinea Pig Lung 15-Hydroxyprostaglandin Dehydrogenase 255

KENNETH L. POWELL, DOROTHY J. M. PURIFOY, and RICHARD J. COURTNEY. The Synthesis of Herpes Simplex Virus Proteins in the Absence of Virus DNA Synthesis 262

DAISUKE AMANO, YUJI KAGOSAKI, TOMOFUSA USUI, SHOZO YAMAMOTO, and OSAMU HAYAISHI. Inhibitory Effects of Superoxide Dismutases and Various Other Proteins on the Nitroblue Tetrazolium Reduction by Phagocytizing Guinea Pig Polymorphonuclear Leukocytes 272

EDWARD G. MILLER. Effect of Deoxyribonuclease I on the Number and Length of Chains of Poly (ADP-Ribose) Synthesized, *in Vitro* 280

ROBERT B. RUCKER, KEVIN TOM, MASARU TANAKA, MITSURU HANIU, and KERRY T. YASUNOBU. Chick Tropoelastin Isolation and Partial Chemical Characterization 287

MUKUL C. DATTA and PETER P. DUKES. Erythropoietin Action in Rat Marrow Cell Cultures in Complete Absence of DNA Synthesis I. Early Effect on RNA Synthesis 293

PETER BAYLEY, STEPHEN MARTIN, and MICHAEL ANSON. Temperature-Jump Circular Dichroism: Observation of Chiroptical Relaxation Processes at Millisecond Time Resolution 303

T. S. K. CHANG and BRUCE MORTON. Epididymal Sulfhydryl Oxidase: A Sperm-Protective Enzyme from the Male Reproductive Tract 309

SUSAN J. KELLY and LARRY G. BUTLER. Enzymic Hydrolysis of Phosphonate Esters 316

M. FEHLMANN, L. LAFLEUR, and N. MARCEAU. Major Changes in Surface Membrane Proteins during Erythropoiesis 322

YASUHIRO MIZOGUCHI, SHUZO OTANI, ISAO MATSUI, and SEIJI MORISAWA. Control of Ornithine Decarboxylase Activity by Cyclic Nucleotides in the Phytohemagglutinin Induced Lymphocyte Transformation 328

KARI U. PRASAD, ROGER W. ROESKE, and CYRIL Y. BOWERS. Synthesis and Biological Activity of Antagonists of Luteinizing Hormone-Releasing Hormone (LH-RH) 336

ASAF A. QUROSHI, ROBERT A. JENIK, MANOK KIM, FRANK A. LORNITZO, and JOHN W. PORTER. Separation of Two Active Forms (HOLO-*a* and HOLO-*b*) of Pigeon Liver Fatty Acid Synthetase and Their Interconversion by Phosphorylation and Dephosphorylation 344

THOMAS E. GROW and MELVIN FRIED. Lipoprotein Geometry. I. Spatial Relationships of Human HDL Apoproteins Studied with a Bifunctional Reagent 352

MASARU TANAKA, MITSURU HANIU, SCOTT ZEITLIN, KERRY T. YASUNOBU, C. A. YU, L. YU, and TSOO E. KING. Sequence of the Cysteine Peptide from the Copper-Subunit of Bovine Cardiac Cytochrome Oxidase 357

D. GLATZLE and M. FRIGG. Acetyl–Coenzyme a Carboxylase Activity in Whole Blood and its Dependency on the Biotin Status of Chickens 368

S. OFFENBACHER and E. S. KLINE. Differential Phosphorylation of Rat Liver Nuclear Non-Histone Proteins *in Vitro* 375

W. M. KEUNG, W. W. LEUNG, and Y. C. KONG. Studies on the Status of Disulfide Linkages and Tyrosine Residues in Cardiotoxin 383

MARC MANGEL. The Enhancement of Photocurrents in Bilayer Lipid Membranes by Phycocyanin: pH and Surface Charge Dependence 393

MICHAEL BRUNNER. Transfection of XC Plaques with DNA from Murine Leukemia Virus Producer Cells 397

C. L. F. WOODCOCK and L-L. Y. FRADO. Thermal Denaturation of Subchromosomal Particles 403

NORIO KOIDE and TAKASHI MURAMATSU. Specific Inhibition of Endo-β-*N*-Acetylglucosaminidase D by Mannose and Simple Mannosides 411

JAMES F. RIORDAN and ROBERTO SCANDURRA. Essential Arginyl Residues in Aspartate Aminotransferases 417

PHYLLIS LIU OSHEROFF, DAVID R. WEBB, and JOHN PAULSRUD. Induction of T-Cell Dependent Splenic Prostaglandin $F_2\alpha$ by T-Cell Dependent Antigen 425

BERNARD MAUDINAS, MICHAEL L. BUCHOLTZ, CONSTANTIN PAPASTEPHANOU, SARVAGYA S. KATIYAR, ANITA V. BRIEDIS, and JOHN W. PORTER. Adenosine 5'-Triphosphate Stimulation of the Activity of a Partially Purified Phytoene Synthetase Complex 430

CONTENTS OF VOLUME 66

TOM G. OBRIG, ROSS S. ANTONOFF, K. SIENA KIRWIN, and JAMES J. FERGUSON, JR., The Binding of Adenosine-3',5'-Monophosphate by Messenger Ribonucleoprotein-like Particles 437

F. A. FERRONE and W. C. TOPP. Circular Dichroism and Raman Studies of the Allosteric Transition in Methemoglobin 444

ERRATUM
Volume 64, Number 1, May 5, 1975: Kimihiko Okazaki, "Evidence for Existence and a Tentative Identification of Coenzyme in Yeast Thiamine Pyrophosphokinase," pp. 20-27 .. 451

Volume 66, Number 2, September 16, 1975

AUTHOR INDEX, Volume 66, Number 2 ii

HERB B. LEJOHN, LINDA E. CAMERON, DAVID R. McNAUGHTON, and GLEN R. KLASSEN. Diguanosine Nucleotides of Fungi that Regulate RNA Polymerases Isolated and Partially Characterised 453

R. K. KELLER, S. H. SOCHER, J. F. KRALL, T. CHANDRA, and B. W. O'MALLEY. Fractionation of Chick Oviduct Chromatin: IV. Association of Protein Kinase with Transcriptionally Active Chromatin 460

DAVID R. McNAUGHTON, GLEN R. KLASSEN, and HERB B. LEJOHN. Phosphorylated Guanosine Derivatives of Eukaryotes: Regulation of DNA-Dependent RNA Polycerases I, II, and III in Fungal Development 468

S. MILSTIEN and S. KAUFMAN. Production of Antibodies to Sheep Liver Dihydropteridine Reductase: Characterization and Use to Study the Enzyme Defect in a Variant Form of Phenylketonuria 475

ROGER L. LUNDBLAD, LAWRENCE C. UHTEG, CHRISTINE N. VOGEL, HENRY S. KINGDON, and KENNETH G. MANN. Preparation and Partial Characterization of Two Forms of Bovine Thrombin 482

C. L. BORDERS, Jr., J. F. RIORDAN, and D. S. AULD. Essential Arginyl Residues in Reverse Transcriptase 490

H. HASKO PARADIES and HENNING BREITHAUPT. On the Subunit Structure of Crotoxin: Hydrodynamic and Shape Properties of Crotoxin, Phospholipase A and Crotapotin 496

S. N. VINOGRADOV, S. L. HERSEY, and R. SHUKUYA. Subunits of Limnodrilus Erythrocruorin 505

S. DEL VALLE-TASCON, G. GIMENEZ-GALLEGO, and JUAN M. RAMIREZ. Light-Dependent ATP Formation in a Non-phototrophic Mutant of *Rhodospirillum Rubrum* Deficient in Oxygen Photoreduction 514

HERBERT S. ROSENKRANZ and WILLIAM T. SPECK. Mutagenicity of Metronidazole: Activation by Mammalian Liver Microsomes 520

ROBERT C. JACKSON, HAROLD P. MORRIS, and GEORGE WEBER. Neoplastic Transformation-Linked Alterations in Adenylosuccinate Synthetase Activity 526

JOSEPH J. BATENBURG and MERLE S. OLSON. The Inactivation of Pyruvate Dehydrogenase by Fatty Acid in Isolated Rat Liver Mitochondria 533

CAROL WESTBROOK and JOSEPH JARABAK. Purification and Partial Characterization of an Nadh-Linked Δ^{13}-15-Ketoprostaglandin Reductase from Human Placenta 541

EIKICHI HASHIMOTO, MASAO TAKEDA, YASUTOMI NISHIZUKA, KOEI HAMANA, and KOICHI IWAI. Phosphorylated Sites of Calf Thymus Histone H2B by Adenosine 3',5'-Monophosphate-Dependent Protein Kinase from Silkworm 547

FRANCIS C. KNOWLES, MELISENDA J. McDONALD, and QUENTIN H. GIBSON. The Origin of the Adams-Schuster Difference Spectrum of Oxyhemoglobin 556

PAUL E. BOCK, HELEN R. GILBERT, and CARL FRIEDEN. Analysis of the Cold Lability Behavior of Rabbit Muscle Phosphofructokinase 564

JOHN W. WIREMAN and PAUL S. SYPHERD. Temperature Dependence for Physical and Functional Reconstitution of 30S Ribosomes of *E. Coli* 570

JIM A. WRIGHT. Altered Aconitase Activity in Hamster Cells Selected for Resistance to Fluorocitrate 578

SELWYN J. REHFELD, DELBERT J. EATOUGH, and LEE D. HANSEN. The Interaction of Albumin and Concanavalin A with Normal and Sickle Human Erythrocytes 586

YOSHISADA FUJIWARA and MARIKO TATSUMI. Repair of Mitomycin C Damage to DNA in Mammalian Cells and its Impairment in Fanconi's Anemia Cells 592

JYOTIRMOY DAS and JACK MANILOFF. Replication of Mycoplasmavirus MVL51: I. Replicative Intermediates 599

STEIN OVE DOSKELAND and PER MAGNE UELAND. A cAMP Receptor from Mouse Liver Cytosol Whose Binding Capacity is Enhanced by Mg^{++}-ATP 606

ELISABET HUMBLE, LARS BERGLUND, VINCENT TITANJI, OLLE LJUNGSTROM, BROR EDLUND, ORJAN ZETTERQVIST, and LORENTZ ENGSTROM. Non-Dependence on Native Structure of Pig Liver Pyruvate Kinase when used as a Substrate for Cyclic 3',5'-AMP-Stimulated Protein Kinase 614

FRANK J. RUZICKA and HELMUT BEINERT. A New Membrane Iron-Sulfur Flavoprotein of the Mitochondrial Electron Transfer System. The Entrance Point of the Fatty Acyl Dehydrogenation Pathway? 622

M. FUKUSHIMA, Y. SUZUKI, Y. TOHIRA, I. MATSUNAGA, K. OCHI, H. NAGANO, Y. NISHII, and T. SUDA. Metabolism of 1α-Hydroxyvitamin D_3 to 1α, 25-Dihydroxyvitamin D_3 in Perfused Rat Liver 632

MASARU TANAKA, MITSURU HANIU, KERRY T. YASUNOBU, and DUANE C. YOCH. The Amino Acid Sequence of the *Azotobacter Vinelandii* Flavodoxin 639

G. H. BOND and P. M. HUDGINS. Inhibition of Human Red Cell NaK-ATPase by Magnesium and Potassium 645

ANA JONAS and RICHARD W. JUNG. Fluidity of the Lipid Phase of Bovine Serum High Density Lipoprotein from Fluorescence Polarization Measurements 651

MICHAEL LITT. Heterogeneity of Turnover Rates of 4S RNAs in Friend Virus-Infected Mouse Leukemia Cells 658

ALLEN C. ROGERSON. Evidence for a Cryptic RNA Polymerase Activity in DNA-Free Minicells of *Escherichia Coli* 665

MELVYN S. SOLOFF. Oxytocin Receptors in Rat Oviduct 671

J. R. RIORDAN and I. GOWER. Purification of Low Molecular Weight Copper Proteins from Copper Loaded Liver 678

STEVEN JACOBS, KWEN-JEN CHANG, and PEDRO CUATRECASAS. Estimation of Hormone Receptor Affinity by Competitive Displacement of Labeled Ligand: Effect of Concentration of Receptor and of Labeled Ligand 687

C. MALAVEILLE, H. BARTSCH, P. L. GROVER, and P. SIMS. Mutagenicity of Non-K-Region Diols and Diol-Epoxides of Benz(a)Anthracene and Benzo(a)Pyrene in *S. Typhimurium* TA 100 693

W. M. GLOCKNER, R. A. NEWMAN, and G. UHLENBRUCK. Carbohydrate Structure and Serological Behaviour of "Antifreeze" Glycoproteins from an Antarctic Fish 701

G. RATTI and K. W. BUCK. RNA Polymerase Activity in Double-Stranded Ribonucleic Acid Virus Particles from *Aspergillus Foetidus* 706

J. D. LINN and K. T. WHEELER. Alkali Unwinding Kinetics of Mammalian DNA in a Simulated Viscoelastometry Experiment 712

W. J. BAUMANN, T. H. MADSON, N. CHANG, P. C. BANDI, and H. H. O. SCHMID. On the Substrate Specificity of Enol Ether Formation in Rat Brain. Metabolism of *O*-Alkyl Ethanediol Phosphoryl-ethanolamine 717

WASUKE MORI, OSAMU YAMAUCHI, YASUO NAKAO, and AKITSUGU NAKAHARA. Spectroscopic Studies on the Active Site of *Sepioteuthis Lessoniana* Hemocyanin 725

YUZURU SHIMIZU, MAKTOOB ALAM, YASUKATSU OSHIMA, and WILLIAM E. FALLON. Presence of Four Toxins in Red Tide Infested Clams and Cultured *Gonyaulax Tamarensis* Cells 731

K. HARBERS, B. HARBERS, and J. H. SPENCER. Nucleotide Clusters in Deoxyribonucleic Acids: XII. The Distribution of 5-Methylcytosine in Pyrimindine Oligonuncleotides of Mouse L-Cell Satellite DNA and Main Band DNA 738

DAVID E. WOOLLEY, DENNIS R. ROBERTS, and JOHN M. EVANSON. Inhibition of Human Collagenase Activity by a Small Molecular Weight Serum Protein 747

S. G. BATRAKOV, A. G. PANOSYAN, G. A. KOGAN, and L. D. BERGELSON. Steric Analysis of Glycerophospholipids by Circular Dichroism. Stereospecifiity of Phospholipase D Catalyzed Transesterification 755

V. G. BERNER, D. W. DARNALL, and E. R. BIRNBAUM. Distance Measurements Between the Metal-Binding Sites in Thermolysin Using Terbium Ion as a Fluorescent Probe 763

ULRICH WESER, WULF PASCHEN, and MAGED YOUNES. Singlet Oxygen and Superoxide Dismutase (Cuprein) 769

CAROL C. CUNNINGHAM and PRISCILLA I. SPACH. Characteristics of a Succinate-Dichlorophenolindophenol Reductase Reconstituted with Bovine Heart Electron Transport Components 778

ELIZABETH HEFTI and DAVID H. L. BISHOP. The 5' Sequence of VSV Viral RNA and its *In Vitro* Transcription Product RNA 785

Y. J. TOPPER, T. OKA, B. K. VONDERHAAR, and M. WILCHEK. Characterization of Super-Active Insulin, Prolactin and Placental Lactogen 793

THOMAS H. MOSS and JAMES A. FEE. On the Magnetic Properties of Cobalt Substituted Bovine Superoxide Dismutase Derivatives 799

WILLIAM F. BOSRON and BERT L. VALLEE. Effect of Phosphate on Multiple Forms of *Escherichia Coli* Alkaline Phosphatase 809

C. C. RIDER and C. B. TAYLOR. Evidence for a New Form of Enolase in Rat Brain 814

K. BROMAN, V. STALON, and J. M. WIAME. The Duplication of Arginine Catabolism and the Meaning of the Two Ornithine Carbomoyltransferases in *Bacillus Licheniformis* 821

MAX H. CAKE and GERALD LITWACK. Effects of Theophylline on the Activation and Nuclear Translocation of the Hepatic Glucocorticoid Receptor at Low Temperature 828

C. S. TENG, B. REES SMITH, J. ANDERSON, and R. HALL. Comparison of Thyrotrophin Receptors in Membranes Prepared from Fat and Thyroid Tissue 836

SARAH LARRIAN JOHNSTON, GEORGE N. ABRAHAM, and ELSA H. WELCH. Structural Studies of Monoclonal Human Cryoprecipitable Immunoglobulins 842

JAMES D. SULLIVAN, Jr. and STANLEY W. WATSON. Purification and Properties of the Clotting Enzyme from Limulus Lysate 848

HIDETO IMAI, MAKOTO SHIMOYAMA, SHIGERU YAMAMOTO, YOSHINORI TANIGAWA, and IWAO UEDA. Effect of Polyamines on Phosphorylation of Non-Histone Chromatin Proteins from Hog Liver 856

F. RIVA, A. GIARTOSIO, C. BORRI VOLTATTORNI, A. ORLACCHIO, and C. TURANO. An Affinity Labeling Reagent for Pyridoxal Phosphate Dependent Enzymes 863

TASUKU NAKAJIMA and CLINTON E. BALLOU. Microheterogeneity of the Inner Core Region of Yeast Manno-Protein 870

Volume 66, Number 3, October 6, 1975

AUTHOR INDEX, Volume 66, Number 3 ii

TAKASHI MURAMATSU, NORIO KOIDE, and MIDORI OGATA-ARAKAWA. Analysis of Oligomannosyl Cores of Cellular Glycopeptides by Digestion with Endo-β-*N*-Acetylglucosaminidases 881

JUNE BOSSINGER and TERRANCE COOPER. Possible Failure of NADP-Glutamate Dehydrogenase to Participate Directly in Nitrogen Repression of the Allantoin Degradative Enzymes in *Saccharomyces Cerevisiae* 889

DON W. SMITH, PATHRAPAMKEL A. ABRAHAM, and WILLIAM H. CARNES. Crosslinkage of Salt-Soluble Elastin *in vitro* 893

CIRO BALESTRIERI, GIOVANNI COLONNA, and GAETANO IRACE. Amino Acid Sequence around a Reactive Cysteine of Yeast Alcohol Dehydrogenase 900

TOM LLOYD and SEYMOUR KAUFMAN. Evidence for the Lack of Direct Phosphorylation of Bovine Caudate Tyrosine Hydroxylase following Activation by Exposure to Enzymatic Phosphorylating Conditions 907

FRED SNYDER and BOYD MALONE. Acyltransferases and the Biosynthesis of Pulmonary Surfactant Lipid in Adenoma Alveolar Type II Cells 914

HOWARD FEIT and MICHAEL L. SHELANSKI. Is Tubulin a Glycoprotein? 920

T. TAMINATO, Y. SEINO, Y. GOTO, and H. IMURA. Interaction of Somatostatin and Calcium in Regulating Insulin Release from Isolated Pancreatic Islets of Rats 928

RICHARD A. HARVEY and ANNE BARRY. Heterogeneity in the Rapidly Exchanging Metals of Horse Liver Alcohol Dehydrogenase 935

JAMES R. HUTTON and JAMES G. WETMUR. Activity of Endonuclease S_1 in Denaturing Solvents: Dimethylsulfoxide, Dimethylformamide, Formamide and Formaldehyde 942

WILLIAM M. MENDEZ, JR. and E. T. KAISER. A "Reverse Burst" Active Site Titration Procedure for Human Carbonic Anhydrase B 949

DAGMAR SILIPRANDI, A. TONINELLO, F. ZOCCARATO, M. RUGOLO, and N. SILIPRANDI. Synergic Action of Calcium Ions and Diamide on Mitochondrial Swelling 956

GEORGE CHACONAS, JOHAN H. van de SANDE, and ROBERT B. CHURCH. End Group Labelling of RNA and Double Stranded DNA by Phosphate Exchange Catalyzed by Bacteriophage T_4 Induced Polynucleotide Kinase 962

LOUIS F. HASS and KENNETH B. MILLER. A Reassessment of the Phosphoglycerate Bypass Enzymes in Human Erythrocytes 970

RAFAEL PONT LEZICA, CHRISTOPHER T. BRETT, PEDRO ROMERO MARTINEZ, and MARCELO A. DANKERT. A Glucose Acceptor in Plants with the Properties of an α-Saturated Polyprenyl-Monophosphate 980

NORMAN HALL and MARLENE DeLUCA. Developmental Changes in Creatine Phosphokinase Isoenzymes in Neonatal Mouse Hearts 988

WILLIAM E. JACOBUS and JONATHON J. EVANS. Inner Compartment Localization of Heart Mitochondrial Nucleoside Diphosphokinase 995

J. J. VILLAFRANCA, D. E. ASH, and F. C. WEDLER. Evidence for Methionine Sulfoximine as a Transition-State Analog for Glutamine Synthetase from NMR and EPR Data 1003

VINCENT A. MEMOLI and GEORGE J. DOELLGAST. Hemoglobin and Serum Albumin: Salt-Mediated Hydrophobic Chromatography 1011

HELEN C. KIEFER, ROBIN ATLAS, DANIEL MOLDAN, and HARVEY S. KANTOR. Inhibition of Guanylate Cyclase and Cyclic GMP Phosphodiesterase by Cholera Toxin 1017

KRYSTYNA PIENKOWSKA and JADWIGA KOZIOROWSKA. Effects of Biotin Depletion on Mouse Leukemic Cells in Culture 1024

M. JOHN CHAPMAN and JOHN P. KANE. Stability of the Apoprotein of Human Serum Low Density Lipoprotein: Absence of Endogenous Endopeptidase Activity 1030

PAUL H. MORGAN and INDIRA G. NAIR. Autocatalytic Activation of the Proenzyme Form of the Cls Subunit of the First Component of Complement 1037

PUTHEZATH DIVAKARAN and SOMA KUMAR. Formation of Acids Shorter than Palmitic by Rat Liver Cytosol 1042

BRIAN A. LARKINS and ARTHUR DALBY. *In Vitro* Synthesis of Zein-like Protein by Maize Polyribosomes 1048

WAI YIU CHEUNG, LAURENCE S. BRADHAM, THOMAS J. LYNCH, YING MING LIN, and E. ANN TALLANT. Protein Activator of Cyclic 3':5'-Nucleotide Phosphodiesterase of Bovine or Rat Brain also Activates Its Adenylate Cyclase 1055

SATYENDRA KUMAR. [9-Isoleucine] $ACTH_{1-24}$, A Competitive Antagonist of $ACTH_{1-24}$ Induced Cyclic AMP and Corticosterone Production 1063

SHUN NAKAMURA, KEN-ICHI ARAI, KENJI TAKAHASHI, and YOSHITO KAZIRO. Amino Acid Sequences of Two Sulfhydryl-Containing Tryptic Peptides of the Polypeptide Chain Elongation Factor Tu 1069

S. S. ZAIL and A. K. van den HOEK. Studies on Protein Kinase Activity and the Binding of Adenosine 3'5'-Monophosphate by Membranes of Hereditary Spherocytosis Erythrocytes ... 1078

ERRATA

Volume 65, Number 1, July 8, 1975: Jeremiah J. Morrissey, Herbert Weissbach, and Nathan Brot, "The Identification and Characterization of *Escherichia coli*," pp. 293-302 1087

Volume 65, Number 4, August 18, 1975: P. R. K. Reddy and C. A. Villee, "Stimulation of Ornithine Decarboxylase Activity by Gonadotropic Hormones and Cyclic AMP in the Testis of Rats," pp. 1350-1354 1087

CORRECTION

Volume 66, Number 1, September 2, 1975: D. B. Archer, "The Use of a Fluorescent Sterol to Investigate the Mode of Action of Amphotericin Methyl Ester, a Polyene Antibiotic," pp. 195-201 1088

Volume 66, Number 4, October 27, 1975

MICHAEL McDANIEL, CATHERINE ROTH, JOAN FINK, GWEN FYFE, and PAUL LACY. Effects of Cytochalasins B and D on Alloxan Inhibition of Insulin Release 1089

B. A. ROE, M. P. J. S. ANANDARAJ, L. S. Y. CHIA, E. RANDERATH, R. C. GUPTA, and K. RANDERATH. Sequence Studies on $tRNA^{Phe}$ from Human Placenta: Comparison with Known Sequences of $tRNA^{Phe}$ from Other Normal Mammalian Tissues 1097

DANIEL E. PEAVY and ROBERT J. HANSEN. Immunological Titration of Rat Liver Glucose-6-Phosphate Dehydrogenase from Animals Fed High and Low Carbohydrate Diets 1106

SANTIAGO GRISOLIA, CONSUELO GUERRI, and WILLIAM GODFREY. Inactivation of Alcohol and Retinol Dehydrogenases by Acetaldehyde and Formaldehyde 1112

PIERRE DE MEYTS and JESSE ROTH. Cooperativity in Ligand Binding: A New Graphic Analysis 1118

AKIO TOMODA, NAOTAKA HAMASAKI, and SHIGEKI MINAKAMI. Transport of Phosphoenolpyruvate Through Red Cell Membrane in Acidified Isotonic Sucrose Medium 1127

B. SHEID, L. PEDRINAN, T. LU, and J. H. NELSON, JR. Single-Stranded Regions in DNA from Pre- and Postmenopausal Human Ovaries 1131

HERMAN MEISNER. Displacement of Palmitate from Albumin by Chlorophenoxyisobutyrate ... 1134

HAIDEH N. LIGHTFOOT, MARC MUMBY, and JOLINDA A. TRAUGH. Dephosphorylation of 40S Ribosomal Subunits by Phosphoprotein Phosphatase Activity from Rabbit Reticulocytes 1141

KHURSHEED N. JEEJEEBHOY, JOSEPH HO, CARL BRECKENRIDGE, ALAN BRUCE-ROBERTSON, GEORGE STEINER, and JOAN JEEJEEBHOY. Synthesis of VLDL by Isolated Rat Hepatocytes in Suspension 1147

S. VUK-PAVLOVIC and B. BENKO. The Haem-Environment in Horseradish Peroxidase as Seen by Proton Magnetic Relaxation 1154

A. J. BAILEY, T. J. SIMS, M. LE LOUS, and S. BAZIN. Collagen Polymorphism in Experimental Granulation Tissue 1160

MALCOLM R. MACNAUGHTON, NIGEL J. DIMMOCK, and ROGER J. AVERY. Adenylic Acid-Rich Sequences in Influenza Virus RNA 1166

KURETHARA S. BOSE and RAMASWAMY H. SARMA. Delineation of the Intimate Details of the Backbone Conformation of Pyridine Nucleotide Coenzymes in Aqueous Solution 1173

ALAN G. WALTON, C. R. McMILLIN, H. J. R. WEINTRAUB, and F. I. HURWITZ. On the Tertiary Structure of Tropomyosin Tactoids 1180

MANCHANAHALLI S. RAO, BENJAMIN C. WU, JEFFREY WAXMAN, and HARRIS BUSCH. Rigid Structural Requirement of the 5' Terminus of mRNA for Translational Activity 1186

CHANG-AN YU, LINDA YU, and TSOO E. KING. The Presence of Multiple Cytochrome *b* Proteins in Succinate-Cytochrome *c* Reductase 1194

LUIS A. QUESADA ALLUE, ENRIQUE BELOCOPITOW, and LUIS R. MARECHAL. Glycosyl Transfer to an Acceptor Lipid from Insects 1201

G. M. LANDES and P. A. KITOS. Isolation of Polyadenylic Acid-Containing RNA Using Ca(II) 1209

G. W. EVANS and T. W. WINTER. Zinc Transport by Transferrin in Rat Portal Blood Plasma 1218

K. P. HSIUNG, S. S. KUAN, and G. G. GUILBAULT. An Inducible Amidase from *Pseudomonas Striata* 1225

MITSUAKI MITANI, TADASHI YAMANISHI, and YUKIO MIYAZAKI. Salinomycin: A New Monovalent Cation Ionophore 1231

CARLOS SOLER-ARGILAGA, ABRAHAM DANON, EDWARD GOH, HENRY G. WILCOX, and MURRAY HEIMBERG. The Effect of Sex on the Uptake of Very Low Density Lipoprotein Triglyceride Fatty Acid from the Plasma of the Rat *in Vivo* 1237

RUTH ROMAN PALACIOS and ESTELA-SANCHEZ de JIMENEZ. Physicochemical Characteristics of Ribosomes in Relation to Cell Aging 1243

G. N. KENT and R. W. RETALLACK. Radioimmunoassay of the Basal Circulating Level of Calcitonin in the Rat 1251

JOHN C. LEE. Base Composition of Terminal Polynucleotides Isolated from Mouse Ascite Nucleolar RNA 1257

JOHN McFARLANE, K. M. MADYASTHA, and CARMINE J. COSCIA. Regulation of Secondary Metabolism in Higher Plants. Effect of Alkaloids on a Cytochrome P-450 Dependent Monooxygenase 1263

KEITH A. FREY and KEITH R. SHELTON. The Disposition of Membrane Polypeptides in Stored Blood 1270

S. S. KERWAR, RICHARD J. MARCEL, and RICHARD A. SALVADOR. Reduction of Prolyl Hydroxylase Activity in L-929 Fibroblasts by Proline Analogs 1275

R. J. SMITH and R. G. BRYANT. Metal Substitutions in Carbonic Anhydrase: A Halide Ion Probe Study 1281

PETER J. NATALE, CARRIE IRELAND, and JOHN M. BUCHANAN. Sizing of Two Bacteriophage T^4 Specific Messenger Ribonucleic Acids Formed *in Vitro* and *in Vivo* 1287

BARRY SHANE and ESMOND E. SNELL. Metabolism of 5'-Deoxypyridoxine in Rats: 5'-Deoxypyridine 4'-Sulfate as a Major Urinary Metabolite 1294

V. S. SHARMA, H. M. RANNEY, J. F. GEIBEL, and T. G. TRAYLOR. A New Method for the Determination of Ligand Dissociation Rate Constant of Carboxyhemoglobin 1301

MAX L. DE REGGI, MICHEL H. HIRN, and MICHEL A. DELAAGE. Radioimmunoassay of Ecdysone: An Application to Drosophila Larvae and Pupae 1307

CLAUDE MERSER and PIERRE SINAY. Total Synthesis and Adjuvant Activity of Bacterial Peptidoglycan Derivatives 1316

AVRAHAM OPLATKA, JULIAN BOREJDO, and HANNA GADASI. Superprecipitation Induced by Soluble Myosin Fragments 1323

JAMES F. HARE. Purification and Characterization of a Dicyclohexylcarbodiimide-Sensitive Adenosine Triphosphatase Complex from Membranes of *Escherichia Coli* 1329

ULRICH N. WIESMANN, STEPHANO DiDONATO, and NORBERT N. HERSCHKOWITZ. Effect of Chloroquine on Cultured Fibroblasts: Release of Lysosomal Hydrolases and Inhibition of Their Uptake 1338

YOHTALOU TASHIMA and MASAHIRO HASEGAWA. Specific Inhibition of Ouabain Sensitive and K^+-Dependent p-Nitrophenylphosphatase by Polyamines 1344

WAYNE A. HENDRICKSON and KEITH B. WARD. Atomic Models for the Polypeptide Backbones of Myohemerythrin and Hemerythrin 1349

BRIAN N. DANCER and J. OLIVER LAMPEN. *In Vitro* Synthesis of Hydrophobic Pencillinase in Extracts of *Bacillus Licheniformis* 749/C 1357

DAVID B. FINKELSTEIN and RONALD A. BUTOW. DNA-Binding Proteins Related to the Dosage of Specific Yeast Chromosomes 1365

DONALD T. DUBIN and VICTOR STOLLAR. Methylation of Sindbis Virus "26S" Messenger RNA 1373

MANJU BASU, JOSEPH R. MOSKAL, DAVID A. GARDNER, and SUBHASH BASU. Biosynthesis *in Vitro* and the Pattern of Lectin Binding Receptors in Monkey Kidney Cell Surfaces 1380

RICHARD E. REEVES and JOHN D. GUTHRIE. Acetate Kinase (Pyrophosphate), A Fourth Pyrophosphate-Dependent Kinase from *Entamoeba Histolytica* 1389

M. SCHEULEN, P. WOLLENBERG, H. M. BOLT, H. KAPPUS, and H. REMMER. Irreversible Binding of Dopa and Dopamine Metabolites to Protein by Rat Liver Microsomes 1396

H. SIEVERTSSON, S. CASTENSSON, K. ANDERSSON, S. BJORKMAN, and CYRIL Y. BOWERS. Thyrotropin and Prolactin Inhibitory Studies by Compounds Related to the Thyrotropin Releasing Hormone 1401

PATRICIA R. GOLDMAN and DEXTER B. NORTHROP. Preparation of Stable Gentamicin Adenylyl Transferase of High Specific Activity 1408

ANDERS BERG, KJELL CARLSTROM, JAN-AKE GUSTAFSSON, and MAGNUS INGELMAN-SUNDBERG. Demonstration of a Cytochrome P-450-Dependent Steroid 15β-Hydroxylase in *Bacillus Megaterium* 1414

Y. W. CHOW, R. PIETRANICO, and AMBUJ MUKERJI. Studies of Oxygen Binding Energy to Hemoglobin Molecule 1424

R. ISHIDA and T. TAKAHASHI. Increased DNA Chain Breakage by Combined Action of Bleomycin and Superoxide Radical 1432

D. P. KESTLER, E. C. MAYNE, T. E. RAY, L. D. GOLDSTEIN, R. H. BROWN, and C. C. BLACK. Biochemical Components of the Photosynthetic CO_2 Compensation Point of Higher Plants 1439

B. MEHLIS, S. BOHM, M. BECKER, and M. BIENERT. Circular Dechroism and Infrared Studies of Substance P and C-Terminal Analogs 1447

GILLES THOMAS and ALAIN FAVRE. 4-Thiouridine as the Target for Near-Ultraviolet Light Induced Growth Delay in *Escherichia Coli* 1454

WILLIAM R. NES, KENNETH KREVITZ, SHAMIDEH BEHZADAN, GLENN W. PATTERSON, JOSEPHINE R. LANDREY, and ROBERT L. CONNER. The Configuration of $\Delta^{5,7,22E}$-Sterols in a Tracheophyte 1462

JAMES M. FELTS, HIROSHIGE ITAKURA, and R. THOMAS CRANE. The Mechanism of Assimilation of Constituents of Chylomicrons, Very Low Density Lipoproteins and Remnants — A New Theory 1467

RONALD H. SWISHER, MICHAEL LANDT, and FRANCIS J. REITHEL. Molecular Weights of Nitrogenase Components from *Azotobacter Vinelandii* 1476

GIDEON BACH, MAIMON M. COHEN, and GERTRUDE KOHN. Abnormal Ganglioside Accumulation in Cultured Fibroblasts from Patients with Mucolipidosis IV 1482

JAMES D. FINKELSTEIN, WALTER E. KYLE, and JOHN J. MARTIN. Abnormal Methionine Adenosyltransferase in Hypermethioninemia 1491

LESLIE D. JOHNSON and JOHN W. HADDEN. Cyclic GMP and Lymphocyte Proliferation: Effects on DNA-Dependent RNA Polymerase I and II Activities 1498

TAKASHI KAWAMURA, NAOSHI ICHIHARA, NOBUTOSHI ISHIMOTO, and EIJI ITO. Biosynthesis of Uridine Diphosphate N-Acetyl-D-Mannosaminuronic Acid from Uridine Diphosphate N-Acetyl-D-Glucosamine in *Escherichia Coli*: Separation of Enzymes Responsible for Epimerization and Dehydrogenation 1506

ERRATUM

Volume 66, Number 1, September 2, 1975: Karl U. Prasad and Roger W. Roeske, "Synthesis and Biological Activity of Antagonists of Luteinizing Hormone-Releasing Hormone (LH-RH)," pp. 234-242 1514

AUTHOR INDEX, VOLUME 66 1515

Information for Contributors

BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS is devoted to the rapid dissemination of timely and significant observations in the diverse fields of modern experimental biology. Manuscripts submitted should be so written as to clearly emphasize the novel aspects of the information reported, with the understanding that the same material has not been, nor will be, submitted for publication elsewhere.

Manuscripts in duplicate may be sent to any one of the editors whose names and addresses are listed on the inside front cover.

To ensure rapid and accurate publication, it is essential that manuscripts conform to the instructions which follow. Manuscripts which are not in accordance with these specifications may be returned.

Preparation of Manuscripts

Article length should not exceed 5 typewritten pages, double-spaced on 8.5 X 11 in. high quality paper (the complete manuscript, including space occupied by figures and tables, should not exceed 8 pages).

Summary. Each article must be preceded by a brief summary, typed single-spaced, not exceeding 10 lines (approximately 100-150 words). This paragraph should adequately summarize the pertinent findings of the paper.

Typing. Articles are reproduced directly from the submitted manuscript as camera-ready copy. Manuscripts must therefore be typewritten on good quality white bond paper. A black silk or carbon typewriter ribbon should be used. Special care should be taken to ensure a sharp clean impression of letters throughout. Use of an electric typewriter is strongly recommended. Erasures should be avoided. Care must also be taken to avoid errors in spelling, word division and punctuation. **No changes may be made in manuscripts after acceptance.**

Manuscripts should be double-spaced on one side of the sheet; **methods, references, footnotes and figure legends should be single-spaced.** Typing area of the page must be as close as possible to 6.5 in. wide and 9.5 in. long.

Symbols and Abbreviations defined in the IUPAC-IUB Document No. 1 (*Arch. Biochem. Biophys.* (1966) 115, 1-12) may be used without definition. Use of all other abbreviations and symbols is to be avoided. When abbreviations are essential, they should be consistent with the form and style of the above document and **must be defined in a footnote,** rather then in the text. Such abbreviations **must not** be used in the Summary.

Enzyme names should not be abbreviated except when the substrate has an approved abbreviation (e.g., ATPase). Use the Enzyme Commission ("EC") code number when available.

Isotopes should be styled following the recommendations of the IUB Commission of Editors of Biochemical Journals. The symbol of the isotope introduced should be placed in square brackets directly attached to the front of the name (e.g., [^{32}P]CMP). Note that the isotope number should only be used as a (superior) prefix to the atomic symbol, not to an abbreviation.

For further information regarding nomenclature authors are advised to consult the Instructions to Authors of the **Archives of Biochemistry and Biophysics** (1974) **160**, iii-xii. Reprints are available from the Publisher.

Footnotes should be typed single-spaced at the foot of the page on which they are mentioned in the text. References and figure legends should be typed single-spaced on separate pages.

Illustrations and Tables. **Do not attempt to insert figures, figure legends or tables into the text.** This will be done by the Publisher.

All drawings should be clearly labeled in black ink in a manner suitable for direct reproduction (Leroy lettering size 120 or 140). Do not use press-on lettering; typewritten lettering is not acceptable.

Figures will be reduced to fit within the type area of the page (approximately 5 X 8 in.); the original drawings should be no larger than 8.5 X 11 in.

Glossy photographs of drawings are acceptable provided they are sharp, clear prints with an even *black* density.

Mathematical or chemical symbols that cannot be typed should be inked in carefully in black. Structural formulas should be drawn in black ink.

Illustrations and tables should be submitted on separate sheets.

Page Numbers and Headings. Page numbers should be typed at the top of the page.

The title of the paper should be typed in capital letters near the top of the first page, with the name(s) and affiliation(s) of the author(s) typed just below. Headings within the article should be arranged according to their relative importance.

References to the literature should be cited by the number in parentheses in the text and listed in numerical order in a single-spaced typed list placed at the end of the manuscript. Abbreviations of journals should conform to those of *Chemical Abstracts Service Source Index, 1969.* Note the following examples.

For a journal article:

1. Chattoraj, D. K., and Bull, H. B. (1971) Arch. Biochem. Biophys, 142, 363-370.

For a book by one or more authors:

2. Robinson, G. A., Sutherland, E. W., and Butcher, E. (1971) Cyclic AMP, pp. 298-302, Academic Press, New York.

Note that inclusive pagination must be given.

Acknowledgment of Receipt. Authors desiring acknowledgment of receipt of manuscript should enclose a stamped self-addressed card.

Reprints. Reprint order forms, with price lists, are sent to the authors immediately upon acceptance of their manuscript.